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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,133	07/22/2005	Peter Isoz	79730	2626
26288 7590 03/09/2007 ALBIHNS STOCKHOLM AB BOX 5581, LINNEGATAN 2 SE-114 85 STOCKHOLM; SWEDEN STOCKHOLM, SWEDEN			EXAMINER CRABTREE, JOSHUA DAVID	
			ART UNIT 3714	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/09/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/543,133

Applicant(s)

ISOZ, PETER

Examiner

Joshua D. Crabtree

Art Unit

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/17/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 15 and 16 both recite the phrase "wherein it is adapted to..." followed by limitations. It is unclear which element in the parent claim is being referred to by the word "it". Additionally, claim 15 recites the limitation "is adapted to be integrated into a standard sight means of the weapon", without setting forth how this adaptation is achieved. Similarly, claim 16 recites the limitation "is adapted to represent an additional sight means to any standard sight means of the weapon", without setting forth how this adaptation is achieved. It is unclear what structural modifications or steps are required to achieve the aforementioned adaptations. For these reasons, the claims are rendered vague and indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 3714

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Gallagher (US 4,624,641).

Gallagher discloses a system which uses an infrared laser and a visible light source to simulate tracers exhibited by simulated fired projectiles (See Abstract; Col. 2: 47 - Col. 3: 21).

With regard to claim 1, and the limitation of projecting a light spot into a visual field of a user of the weapon such that the light spot is observable by the user when firing at a target, wherein the light spot indicates a non-ballistic estimation of a point of impact for a simulated bullet, Gallagher disclose that a visible light source beam is superimposed on the user's field of vision, which indicates the point of impact of a simulated fired projectile (Col. 5: 21-32).

With regard to the limitation of turning on the light spot at a first point in time after triggering a simulated bullet, and turning off the light spot at a second point in time after triggering the simulated bullet, ~~Gallagher discloses~~ Gallagher discloses that the visible light source is pulsed (i.e., turned on and off) at a slower rate than the invisible light source is pulsed (Col. 6: 30-50).

With regard to the limitation of a switched on interval between the first point in time and the second point in time overlapping a laser interval during which at least one light pulse is transmitted from the fire simulation means to simulate the bullet fired

from the weapon to the target, Gallagher discloses that an infrared light source is used to simulate the trajectory of a fired projectile (Col. 2: 60 - Col. 3: 21). Specifically, Gallagher discloses that the infrared laser and visible light beam are directed toward each other during operation (Col. 2: 68 - Col. 3: 21). Gallagher further discloses that the visible light source is pulsed at a slower rate than the laser (Col. 6: 30-50). Therefore, the laser is pulsed within the time period that the visible light source is pulsed.

Additionally, Gallagher discloses that it is known in the art to couple a laser transmitter with an aiming system, in order to simulate the trajectory of a projectile (Col. 1: 7 - Col. 2: 22).

With regard to claim 2, and the limitation wherein the first point in time coincides with a point in time at which a first light pulse is transmitted from the fire simulation means, Gallagher discloses that both the visible light and the infrared light are pulsed in order to produce the tracer effect (Col. 2: 60 - Col. 3: 21).

With regard to claim 3, and the limitation wherein the switched-on interval is substantially longer than the laser interval, Gallagher discloses that the visible light is pulsed at a slower rate than that of the laser, as previously described (Col. 6: 30-50).

With regard to claim 4, and the limitation of preventing a light spot from being turned on during an inhibiting interval after a previous light spot has been turned on, the invention of Gallagher includes the feature wherein a visible light spot is pulsed periodically, as previously described. This means that the light is on for a portion of the period (during the duty cycle), and is off for the remainder of the period. Therefore, the

portion of the period other than the duty cycle would constitute an "off time" for the visible light spot.

With regard to claim 7, and the limitation wherein the estimated point of impact represents an endpoint of a line of sight from the muzzle being parallel to a longitudinal symmetry axis of the barrel, Gallagher discloses that the visible light source, representing a point of impact, is superimposed over the field of view of the user, as previously described (Col. 5: 6-32).

With regard to claim 8, and the limitation wherein the switched-on interval represents 1-20% of an estimated time of flight between the muzzle and the estimated point of impact for the corresponding live bullet, the invention of Gallagher is inherently capable of this feature. This feature would vary, depending on how far away a target is. For example, if a target is at a distance such that it take 100 seconds for a projectile to reach the target (flight time), then a pulse of one second would be equivalent to 1 percent of the flight time. Similarly, a pulse of twenty seconds would be equal to 20% of the flight time.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher in view of Chanforan et al. (US 4,606,724).

With regard to claims 5 and 6, Gallagher does not disclose the feature of varying at least one of the first point in time and the second point in time according to a stochastic algorithm. Chanforan teaches a firing simulator system wherein the number of projectiles in a burst may be varied according to random values (Col. 7: 15-33). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the teaching of Chanforan et al. into the invention of Gallagher in order to provide a firing simulation system in which the number of simulated projectiles fired in a burst varies randomly, to add realism to the experience.

With regard to claim 6, and the limitation wherein the stochastic algorithm is adapted to reflect a bullet light-up parameter of a particular ammunition, Gallagher discloses that the invention, Gallagher discloses that it is known in the art to simulate different types of ammunition with such an invention (Col. 1: 40-51).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher in view of Chanforan et al., as applied above, and further in view of Ashford et al. (US 4,253,249).

With regard to claim 9, Gallagher, as modified by Chanforan et al., does not explicitly disclose the limitation wherein the estimated time of flight is calculated by means of a non-ballistic algorithm. Ashford teaches a weapons training system wherein a flight time is estimated using a look-up table, and incorporates the range and

characteristics of the ammunition (i.e., non-ballistic algorithm) (Col. 5: 10-16). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the teaching of Ashford et al. into the invention of Gallagher, as modified by Chanforan et al., in order to provide a weapon simulator system in which flight time is estimated using the range and type of ammunition. Since the invention of Gallagher already provides for different types of ammunition to be simulated, it would be advantageous to be able to estimate the flight time based on the ammunition and range.

5. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher in view of Allard et al. (US 4,657,511).

With regard to claims 10 and 11, Gallagher disclose the features as claimed (as previously described), with the exception of implementing the invention using computer program code. Gwynn teaches a gunnery training system, in which the features of the invention are implemented using computer code (Col. 4: 20 – Col. 6: 10). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the teaching of Allard et al. into the invention of Gallagher in order to provide a weapon simulation system controllable by computer software. This feature would add flexibility to the invention. A user could affect changes in the invention by modifying software code, rather than directly modifying the hardware.

With regard to claim 12, and the limitation of a light projecting means adapted to project a light spot into the user's visual field such that the light spot indicates a non-ballistic estimation of a point of impact for a simulated bullet, Gallagher discloses

superimposing a visible light beam over a user's field of view, as previously described.

With regard to the limitation wherein the light projecting means is adapted to turn on the light spot at a first point in time after triggering a simulated bullet, and turn off the light spot at a second point in time after triggering the simulated bullet, and a laser unit adapted to, during a laser interval after triggering the simulated bullet, transmit the at least one light pulse in a direction of the target to simulate the fired bullet from the weapon to the target, wherein a switched-on interval between the first point and the second point in time overlaps the laser interval, Gallagher discloses that the visible light source is pulsed (i.e., turned on and off) at a slower rate than the invisible light (laser) source, as previously described (Col. 6: 30-50).

With regard to claim 13, and the limitation of a light source adapted to produce visible light with a relatively narrow wavelength spectrum, Gallagher discloses that the visible light source may comprise a light emitting diode, or alternatively comprise any appropriate type of light source (Col. 4: 52-55).

With regard to the limitation of a wavelength selective mirror surface adapted to reflect light within the relatively narrow wavelength spectrum, and permit transmission of a predominance of electromagnetic energy representing visible light of other wavelengths, Gallagher discloses that a partially reflecting mirror, or a "Heat Reflecting Mirror" (manufactured by the Rolyn Corporation), may be implemented in the invention (Col. 4: 34-Col. 6: 50).

With regard to the limitation wherein the mirror surface is arranged relative to the light source such that the light spot occurs in the user's visual field when aiming at the target, Gallagher discloses that the mirror reflects the visible light such that the light spot is within the user's field of vision, as previously described (Col. 5: 6-32).

With regard to claim 14, and the limitation wherein the light projecting means and the laser unit are calibrated to one another such that the light spot indicates a point to which the light pulse is transmitted, Gallagher discloses that the visible light source and the invisible light source are used together to provide a visual indication of an impact point of a simulated projectile, as previously described.

With regard to claims 15 and 16, and the limitation wherein the fire simulation means is adapted to be integrated into a standard sight means of the weapon adapted to be integrated into a standard sight means of the weapon adapted for aiming live bullets (as in claim 15), and wherein the firing simulator is adapted to represent an additional sight means to any standard sight means of the weapon (as in claim 16), Gallagher discloses that it is known in the art to affix such an invention to a weapon and aligned with the weapon sighting system (Col. 1: 12-17). Gallagher discloses that the invention may be adaptable to any kind of weapon (Col. 6: 51-55). Additionally, Gallagher discloses in Fig. 1 an embodiment wherein the invention is connected to what appears to be a standard weapon.

Conclusion

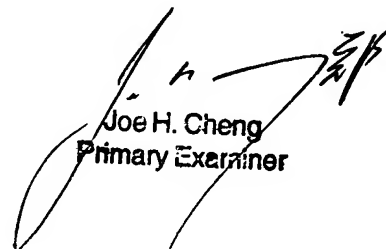
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D. Crabtree whose telephone number is 571-272-8962. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JC

Joshua D. Crabtree
February 21, 2007


Joe H. Cheng
Primary Examiner